

BEFORE THE

Federal Communications Commission

WASHINGTON, D.C. 20554

In the Matter of)	
)	
Amendment of Parts 2 and 25 of the)	
Commission's Rules to Allocate Spectrum and)	IB Docket No. 07-101
Adopt Service Rules and Procedures to Govern)	
the Use of Vehicle-Mounted Earth Stations in)	
Certain Frequency Bands Allocated to the Fixed-)	
Satellite Service)	
To: The Commission		

COMMENTS OF
MARITIME TELECOMMUNICATIONS NETWORK, INC.

Maritime Telecommunications Network, Inc. ("MTN"), by its attorneys and pursuant to Section 1.415 of the Commission's rules, 47 C.F.R. § 1.415, hereby submits these Comments in response to the above-captioned Notice of Proposed Rule Making proposing a regulatory framework for licensing Vehicle-Mounted Earth Stations ("VMES").¹ MTN fully supports the NPRM's core approach of licensing VMESs as an application of the fixed-satellite service ("FSS") in both the conventional and extended Ku-bands patterned after the Earth Stations on Vessels ("ESV") licensing model. As explained below, the ESV rules as applied to VMESs will ably protect FSS Ku-band

¹ *Amendment of Parts 2 and 25 of the Commission's Rules to Allocate Spectrum and Adopt Service Rules and Procedures to Govern the Use of Vehicle-Mounted Earth Stations in Certain Frequency Bands Allocated to the Fixed-Satellite Service*, Notice of Proposed Rule Making, FCC 07-86 (released May 15, 2007) ("VMES NPRM").

operations provided that the harmful interference-avoidance provisions, including most critically the pointing accuracy requirements, are maintained.

I. Introduction

MTN is the nation's leader in maritime communications, delivering broadband voice, data, Internet and compressed video services to the mobile maritime industry using cutting edge ESV technology. MTN worked closely with the Commission for years to develop a regulatory framework for ESVs, which culminated in the Order establishing ESVs as an application of the FSS.² In crafting the technical and operational requirements for Ku-band ESVs, two key objectives informed the Commission's decision-making: compliance with the Commission's two-degree spacing policy and avoidance of harmful interference to existing and future FSS operations. ESVs operating under the resulting rules, set out in Section 25.222 of the Commission's rules,³ handily meet those objectives.

Indeed, the successful implementation of the ESV networks of MTN prove that earth stations in motion can be compatible with FSS satellite systems and other users of the Ku-band FSS frequencies. MTN is confident that the success of ESVs can be replicated in the context of VMESs, provided that the Commission maintains the same balance of operational flexibility and interference avoidance that is an ESV hallmark. Deviating from the ESV model in a manner that would increase the likelihood of harmful interference threatens to upset this careful balancing of interests.

² See *Procedures to Govern the Use of Satellite Earth Stations on Board Vessels in the 5925-6425 MHz/3700-4200 MHz Bands and 14.0-14.5 GHz/11.7-12.2 GHz Bands*, Report and Order, 20 FCC Rcd 674 (2005).

³ 47 C.F.R. § 25.222.

II. The Commission Should Adopt Its Proposed VMES Allocations.

As an initial matter, MTN supports the Commission's proposal to add to a non-Federal footnote to the U.S. Table of Frequency Allocations that recognizes VMESs as an application of the FSS and permits VMES operations in the conventional Ku-band on a primary basis.⁴ While it agrees with the Commission that VMESs differ from ESVs in some important respects, MTN believes that the lack of co-primary shared services in the conventional Ku-band should permit the grant of primary status to VMESs as an FSS application. MTN also supports the proposal to add a non-Federal footnote that permits VMES operations in the extended Ku-band on a secondary basis.⁵

Regarding allocation of the 14.0-14.2 GHz uplink band, the Commission requests comment on the feasibility of allowing VMES operations within a 125 kilometer protection zone around operational NASA Tracking and Data Relay Satellite System ("TDRSS") sites in the event VMES is granted primary status in the uplink bands.⁶ MTN recognizes the need to protect TDRSS operations in White Sands and Guam, as well as the future TDRSS facility in the mid-Atlantic region. However, MTN believes that VMES operators that plan operations within 125 miles of these TRDSS sites should be permitted to coordinate operations as a condition to licensing. Likewise, MTN supports coordination in the 14.47-14.5 GHz band for VMES operations in the vicinity of the radio astronomy service observatories.⁷ Coordination

⁴ *VMES NPRM* at ¶ 40.

⁵ *Id.* at ¶ 39.

⁶ *Id.* at ¶ 32.

⁷ *Id.* at ¶ 37.

agreements can be implemented through the use of Global Positioning System software designed to control transmissions.

III. The Commission Should Apply The ESV Rules To VMESs With Only Minimal Modifications.

A. MTN Opposes Any Modifications That Risk Increased Interference Or Are Unduly Restrictive.

The overarching regulatory question posed by the Commission in the *VMES NPRM* is whether the ESV rules as applied to VMESs will provide sufficient protection to the FSS. In this regard, the Commission requests comment on whether the three principal rules designed to protect adjacent FSS satellites from ESVs – off-axis e.i.r.p.-density limits, antenna pointing requirements, and the termination of operations if an antenna strays from its intended target – should be applied to VMESs.⁸ The key objective in applying these rules to ESVs, and by extension to VMESs, is to ensure compliance with the Commission’s two-degree spacing policy.

Protecting FSS operators and their customers can best be achieved, in MTN’s opinion, through the application of Section 25.222 to VMES. Because it contains off-axis e.i.r.p. spectral density and antenna pointing accuracy requirements designed to protect FSS Ku-band operations consistent with the two-degree spacing policy, Section 25.222 is an entirely appropriate regulatory framework for VMESs. Indeed, except for two minor modifications proposed below, MTN believes that relevant portions of Section 25.222 can be applied to VMES virtually intact.

Other modifications to Section 25.222 offered in this proceeding should be rejected as inconsistent with the goal of interference avoidance, or dismissed as overly restrictive. In particular, MTN is very concerned with any proposal to relax the antenna pointing accuracy requirements without a commensurate reduction in power. Satellite operators offering these

⁸ *Id.* at ¶ 47.

proposals apparently are willing to assume an increased risk of interference in exchange for new business opportunities. MTN believes this approach to be misguided, particularly given the many commercially available very small aperture stabilized antenna systems that are fully compliant with the Section 25.222 pointing accuracy criteria.⁹

Accordingly, MTN opposes SES Americom's proposal for an exception to the pointing accuracy and auto-shutoff requirements provided the VMES applicant is able to demonstrate compliance with the off-axis e.i.r.p.-density limits and obtain and submit affidavits for potentially-affected satellite operators agreeing to the applicant's proposed operations.¹⁰ MTN believes that SES Americom's proposal is based on a faulty premise – namely, that satisfaction of the off-axis e.i.r.p.-density limits contained in the ESV rules necessarily equates to satisfaction of, or somehow negates the need for, the ESV pointing accuracy requirements. That is not the case because the two requirements are independently necessary, rather than redundant, forms of protection. Off-axis e.i.r.p.-density limits are intended to permit operations consistent with the Commission's two-degree spacing policy by restricting the power density emitted in directions other than towards the earth station's target satellite. The pointing accuracy requirements, in contrast, protect adjacent satellite operations by limiting the degree of allowable antenna drift, and then requiring automatic shutdown in the event of excessive mispointing. Given the differing means of achieving interference protection offered by the two rules, satisfaction of one

⁹ Two of these antenna systems are Sea Tel Model No. 2406 and KNS Model No. Z6. Both have a diameter of 60 cm.

¹⁰ *VMES NPRM* at ¶ 52. MTN filed comments opposing SES Americom's request for waiver of the antenna pointing accuracy and auto-shutoff requirements contained in Sections 25.222(6) and (7) of the Commission's rules, submitted in connection with its application for authority to operate a Ku-band ESV network. *See* FCC File No. SES-LIC-20070504-00563.

does not mean satisfaction of the other. Were the two rules as redundant as SES Americom suggests, there would have been no reason to adopt both rules in the first place.

Also problematic, in MTN's opinion, are ViaSat's and Qualcomm's support of alternatives to the existing pointing accuracy limits that are a function of antenna beam width.¹¹ MTN opposes this approach as unnecessary because of the readily available antenna systems that comply with the existing pointing accuracy requirements. These requirements should not be relaxed simply to permit the use of smaller diameter (and typically less expensive) antennas. The risk of interference to adjacent satellites is too high of a figurative price to pay for whatever cost savings that may be achieved through the use of smaller antennas.¹²

MTN opposes as overly restrictive any limitation of VMESs to government use, or to commercial contracts for government use.¹³ The Commission proposed this limitation out of a concern that the aggregate emissions from ultra-small terminals mounted on private vehicles traveling across the United States may increase the risk of harmful interference to the FSS.¹⁴ MTN believes that maintenance of the pointing accuracy requirements and the required application of spread spectrum to VMES modulations in certain circumstances (as detailed below) will reduce the risk of harmful interference to an acceptable level. Small VMES

¹¹ *VMES NPRM* at ¶ 53.

¹² Qualcomm also proposes an amendment to Section 25.209 of the Commission's rules that would set a threshold on antenna size (*e.g.*, 55 cm) above which a VMES allocation (and allocations for all other categories of service that employ earth stations in the 11.7-12.2 GHz band, including ESVs) would be primary and below which it would be secondary. *VMES NPRM* at ¶ 65. MTN does not object to Qualcomm's proposal provided that the pointing accuracy requirements are retained in the service rules adopted for VMESs.

¹³ *Id.* at ¶ 75.

¹⁴ *Id.* at ¶ 72.

terminals that cannot show compliance with two-degree spacing and protection requirements should not be licensed.

B. Section 25.222 As Applied To VMES Should Be Modified To Require Spread Spectrum In Certain Cases And To Remove The Unnecessary Data Logging Requirement.

MTN supports limited modification of the ESV rules as applied to VMESs only to further reduce the potential of harmful interference or where experience with ESVs shows such modifications to be appropriate. Regarding the former, MTN recommends that spread spectrum be required for VMES modulations where smaller diameter antennas (*i.e.*, antennas with diameters of less than one meter) are used. As the Commission correctly notes, smaller antennas operating in a mobile environment have a greater potential for interference to adjacent satellites than the larger antennas currently authorized in the Ku-band. The potentially large scale deployment of VMESs by commercial licensees only heightens that risk. The required use of spread spectrum as proposed by MTN will reduce the potential for interference to other FSS operations by reducing the potential of off-axis e.i.r.p. emissions.

MTN also supports General Dynamics' proposal not to apply the data logging requirements to VMESs, provided ESV operators in the Ku-band are similarly excused from logging their data.¹⁵ The Commission adopted the ESV data logging requirement primarily out of a concern of the risk of interference from ESV operations to terrestrial wireless service providers sharing the C-band frequencies. Data logging applicable to Ku-band ESV operations were a comparatively minor consideration, limited to concerns of interference to Federal government facilities in portions of the Ku-band, which is also the case with VMESs. Based on its experience as an ESV licensee, MTN has concluded that the burdens associated with

¹⁵ See *id.* at ¶ 63.

maintaining a data log for operations in the Ku-band are not justified given the low level risk of interference to Federal government Ku-band operations. Neither VMESs nor ESVs should be required to maintain a Ku-band data log.

IV. The Commission Should Adopt Licensing Considerations That Minimize Regulatory Burdens.

The Commission favors licensing proposals that minimize licensees' regulatory burdens and which simplify and accelerate the licensing process.¹⁶ MTN sees no reason to deviate from that approach with VMESs. MTN supports the blanket licensing of VMESs because of the large number and ubiquity of system terminals. MTN also supports ALSAT authority for Ku-band VMESs and license terms of 15 years.¹⁷ The former will simplify the license application process, while the latter will provide the degree of regulatory certainty accorded other licensed earth station networks.

¹⁶ *VMES NPRM* at ¶ 77.


¹⁷ *Id.* at ¶¶ 81, 82.

CONCLUSION

For the foregoing reasons, MTN urges the Commission to establish a regulatory framework for VMESs closely modeled on the proven ESV model that retains intact the antenna pointing accuracy requirements.

Respectfully submitted,

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